

REMARKS

There are now pending in this application Claims 1-10, 23, and 24, with Claims 1, 5, 6, and 7 being the independent claims. Claims 1, 5-7, and 9 have been amended. Claims 23 and 24 are newly presented.

The newly-presented Claims 23 and 24 have been added to provide an additional scope of protection. Support for the newly presented claims may be found, for example, in Figures 5 and 8, and the corresponding description in the specification. No new matter has been added.

In the Official Action dated April 7, 2003, Claims 1-11 were rejected under 35 U.S.C. § 102(a) as being anticipated by Japanese Patent No. 2000-188894 (Kazuya). Claims 1-3, 12-14, and 18-20 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,986,091 (Quiogue, et al.). Claims 1, 2, 5, 6, 16-19, and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,469,993 (Swanson, et al.). Claims 15 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Quiogue, et al. and further in view of U.S. Patent No. 5,732,195 (Nakata, et al.). Additionally, it was noted that should Claims 7 and 18 be found allowable, Claims 11 and 22, respectively, would be objected to under 37 C.F.R. § 1.75 as being substantial duplicates thereof. Reconsideration and withdrawal of these rejections are respectfully requested in view of the above amendments and the following remarks.

The rejections of Claims 11-22 are deemed moot in view of the cancellation of these claims. Favorable consideration is requested.

With respect to independent Claim 1, the present invention relates to a DC motor control method in a device which drives the mechanism by using a DC motor as a power source, comprising a step of discontinuously reducing a velocity command value of the motor within a deceleration region.

Independent Claims 5 and 6 relate to a program product and a storage medium respectively, and include the similar feature of discontinuously reducing a velocity command value of the motor within a deceleration region.

Independent Claim 7 relates to a DC motor control apparatus that includes the similar feature of a change means for changing the velocity command value of the motor generated by a first velocity command value generation means to the velocity command value generated by the second velocity command value generation means, at predetermined timing within a deceleration region.

The Kazuya patent fails to disclose or suggest the above-referenced features of the present invention. In particular, the Kazuya patent fails to disclose or suggest discontinuously reducing a velocity command value of the motor within a deceleration region (Claims 1, 5, and 6) and changing the velocity command value of the motor generated by the first velocity command value generation means to the velocity command value generated by the second velocity command value generation means, at predetermined timing within a deceleration region (Claim 7).

In the present invention, the velocity command value jumps down within a deceleration region. For example, as illustrated in Figures 5 and 8, each of the dashed lines representing the velocity command value jumps down to a constant value within the deceleration

region. In Figure 8, the dashed line V_y representing the velocity command value jumps down from V_2 to V_{STOP} at the timing where the object reaches to POSCHG. By virtue of this feature, the time required to stop the mechanism can be reduced without degrading positioning accuracy.

The Kazuya patent discloses a motor control method for reducing the overshoot after reaching the target speed. However, in the method disclosed in that patent, the velocity command value is continuously changed, as shown in the solid line in Figure 1.

Moreover, the Kazuya patent does not disclose control within the deceleration region.

The other cited references fail to compensate for the deficiencies of the Kazuya patent. For example, Figure 16 of Quiogue, et al. and Figure 8 of Swanson also show a continuous change in velocity value, rather than a discontinuous reduction within the deceleration region, as disclosed and claimed in the present invention.

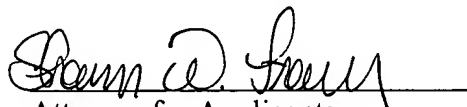
For the above reasons, Applicants submit that independent Claims 1, 5, 6, and 7 are allowable over the cited art.

The dependent claims depend from one or another of the independent claims and are believed allowable for the same reasons. Moreover, each of these dependent claims recite additional features in combination with the features of their respective independent claims and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action and submit that the application is in condition for allowance. Favorable consideration of the claims and early passage to issue of the present application earnestly are solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Shawn W. Fraser", is written over a horizontal line.

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